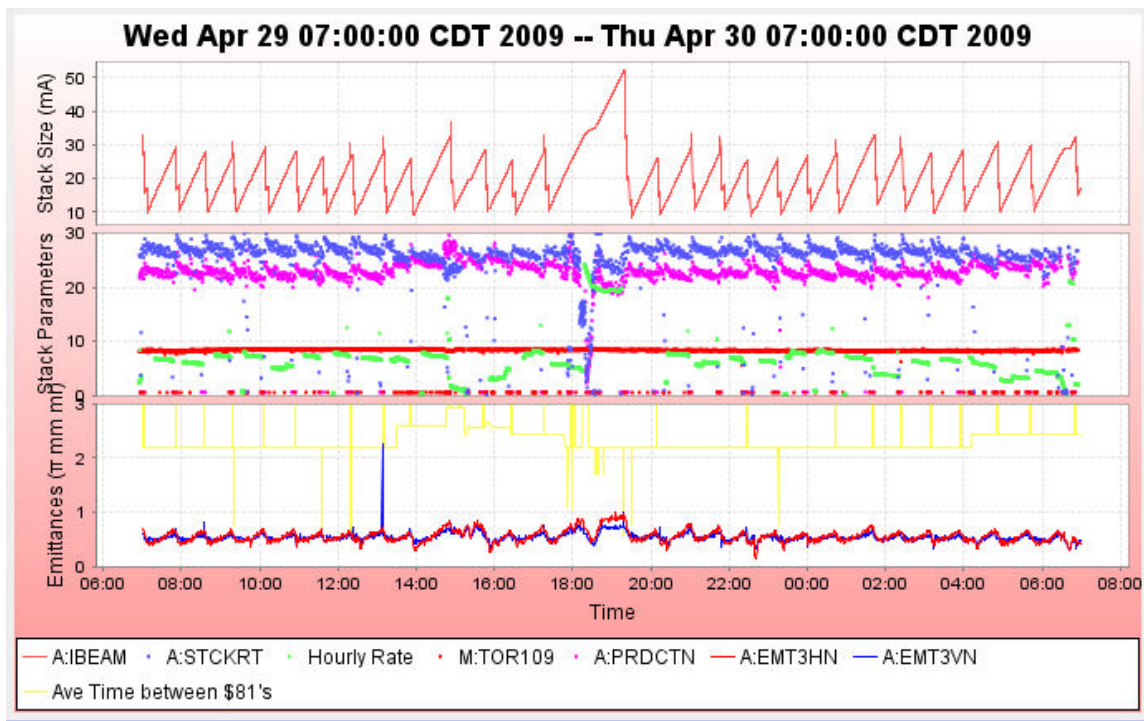


Stacking

- Stacked ok overnight.
 - Had good uptime.
 - Stacked 588mA in 23.66 hours of stacking.
 - D44 Histogram data
 - Average stacking rate 26mA/hr w/o SY120, and 25mA with SY120
 - Average production was 22e-6/p w/o SY120 and 23 e-6/p with SY120
 - Average protons on target overnight was 7.7e12.



Transfers

- We unstacked 557e10 in 56 transfers over 27 sets.
 - Overall efficiency was 92.6%
 - That jumps to 95.88% if you take away the missed transfers #12847 (see below) and an inefficient transfer of four (#12846)
 - This is down 0.5%, so we'll have to look at this today.
- A number of controls issues piled up on the transfers.
 - On Transfer 12847 we lost two transfers when M:Q103 was told to ramp to the wrong value.
 - Line 289 in the [a2r_setup_revps_os1](#) ACL script sets the Q103 pbar ramp setting for 8 GeV unstacking pbars equal to the 8GeV reverse proton setting. We do not tune up this device during reverse proton tune-up, but the command is in place to catch any changes made to the AP1 lattice.

- lattice.
 - ◆ **set M:Q103PB = M_Q103RP**
 - At 20:04 the device was set to -250A. Normally runs 10.24A.
 - We do this for other beam line ramped devices and it always works.
 - The settings come from a 465 card in Pbar Crate 83 Slot 5.
- MiniTables corrupt on transfers 12859 and 12861.
 - The recycler sequencer properly incremented the numbers and started the shot scrapbook.
 - SDA didn't collect the data. Kevin Cahill is looking into this.
- There has been a problem with checking the Accumulator shutter position in line 686 of the [a2r_setup_rev_p_os1](#) ACL script.
 - Command
 - ◆ **if A:ESHTST = 1 && A:ESHUTC is on line 636**
 - ◆ **if A:ISHTST = 1 && A:ISHUTC is on line 645**
 - Line 636 has lots of **ACNET_IVM** (1 -23) = invalid message length of buffer address.
 - When it gets to checking in injection shutter it looks like both the IF and the ELSE code is run?
 - Also, injection shutter has an ERROR 4 in digital status.
- Problems reported on FTPs. Just SMED rays.
- Problems reported with datalogging the Injection Shutter. This is just a byproduct of the new? D44 feature that allows you to have different T1 and T2 times for individual devices on the plot.
- Problems re-enabling alarms from the sequencer after transfers.
 - Command
 - ◆ **Alarm List 122**
 - Get ACNET_IVM (1 -23) errors = invalid message length of buffer address.
 - We have watched this in hopes of finding problems communicating with a single MADC, but that is not the case. It is different devices every time. Ops re-run the command two or three times to get it to work. This is something that happens a number of times each shift.
- Talked to Brian Hendricks about our controls issues. He says there are known problems with the Pbar Front End that he believes is related to the above problems. Controls experts are looking into this (Rich Neswold). They will likely need to reboot the Pbar Front End.
-

Column 1 Number _0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time	Column 21 Number _20_A:J BEAMB sampled on \$91 (A:BEA M7), E10	Column 22 Number _21_A:J BEAMB sampled on \$94 (A:BEA M9), E10	Unstacked (mA)	Column 23 Number _22_R: BEAMS (R:BEA ME0[0]) pre zfer E10	Column 24 Number _23_R: BEAM (R:BEA ME0[1]) post zfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Trans fers	Set s	Column 5 Number_4_Acc Horizontal Emittanc e	Column 6 Number_5_Acc Vertical Emittanc e	Column 8 Number_7_Acc Longitudi nal Emittanc e	
	Totals =>			557.46			516.14	92.59%	93.71%	93.64%	56	27	5.18	4.7863	1.8864	
12860	Thursday, April 30, 2009	5:43	29.92	10.36	20.83	260.91	280.74	19.95	95.78%	96.98%	96.61%	2	1	4.81	4.419	1.888
12858	Thursday, April 30, 2009	3:10	28.42	10.36	19.33	222.77	241.25	18.60	96.21%	96.79%	96.44%	2	1	5.029	4.433	1.898
12857	Thursday, April 30, 2009	2:25	27.71	9.39	19.56	204.46	223.23	18.82	96.23%	97.78%	97.99%	2	1	4.93	4.327	1.869
12856	Thursday, April 30, 2009	1:42	28.78	10.05	19.98	185.70	204.84	19.17	95.92%	96.37%	96.17%	2	1	4.878	4.709	1.891
12855	Thursday, April 30, 2009	0:44	32.91	11.94	22.24	164.89	186.05	21.24	95.49%	95.19%	96.91%	2	1	5.518	4.97	1.899
12853	Thursday, April 30, 2009	0:00	27.55	9.48	19.33	146.69	165.15	18.53	95.85%	97.16%	97.35%	2	1	4.74	4.537	1.879
12852	Thursday, April 30, 2009	23:15	26.97	9.92	18.35	129.36	146.93	17.65	96.16%	97.34%	97.47%	2	1	4.921	4.52	1.894
12851	Wednesday, April 29, 2009	22:28	26.00	9.10	18.14	112.11	129.46	17.38	95.79%	97.73%	96.44%	2	1	4.706	4.348	1.907
12850	Wednesday, April 29, 2009	21:48	25.68	8.43	18.55	94.41	112.29	17.91	96.52%	97.61%	98.01%	2	1	4.694	4.209	1.887
12849	Wednesday, April 29, 2009	21:03	28.82	10.47	19.63	75.78	94.54	18.81	95.81%	96.27%	95.89%	2	1	5.574	4.875	1.907
12848	Wednesday, April 29, 2009	20:10	29.71	10.54	20.43	56.73	75.91	19.19	93.90%	95.77%	95.81%	2	1	5.742	5.378	1.883
12847	Wednesday, April 29, 2009	19:19	26.03	8.91	18.43	56.32	56.78	0.49	2.66%	4.78%	5.61%	2	1	5.165	4.946	1.882
12846	Wednesday, April 29, 2009	17:18	52.42	8.34	47.80	11.97	56.41	44.65	93.40%	94.85%	94.74%	4	1	6.542	5.573	1.919
12845	Wednesday, April 29, 2009	16:28	28.99	10.21	20.05	354.10	373.07	19.12	95.32%	95.98%	94.89%	2	1	5.596	5.07	1.895
12844	Wednesday, April 29, 2009	15:45	25.59	9.10	17.76	338.40	355.34	17.08	96.17%	95.71%	96.81%	2	1	5.133	4.67	1.877
12843	Wednesday, April 29, 2009	14:54	28.60	10.32	19.53	321.00	339.42	18.52	94.80%	96.77%	96.95%	2	1	5.219	4.902	1.896
12842	Wednesday, April 29, 2009	13:52	32.96	10.74	23.13	300.36	322.09	21.90	94.69%	95.70%	95.45%	2	1	6.602	5.906	1.854
12841	Wednesday, April 29, 2009	13:11	26.03	9.24	17.83	284.73	301.66	17.06	95.70%	98.19%	97.68%	2	1	5.006	4.95	1.878
12840	Wednesday, April 29, 2009	12:22	28.36	9.84	19.81	266.69	285.50	18.92	95.51%	96.97%	98.60%	2	1	5.058	4.618	1.875
12839	Wednesday, April 29, 2009	11:36	27.11	9.16	19.22	248.84	267.35	18.57	96.59%	97.51%	96.39%	2	1	4.935	4.662	1.858
12838	Wednesday, April 29, 2009	10:55	26.43	9.57	19.03	231.08	249.37	18.38	96.61%	98.44%	97.15%	2	1	4.964	4.599	1.895
12837	Wednesday, April 29, 2009	10:09	28.17	9.98	19.46	212.81	231.52	18.81	96.64%	97.44%	96.13%	2	1	4.993	4.805	1.888
12836	Wednesday, April 29, 2009	9:20	29.23	9.42	20.85	193.15	213.23	20.14	96.60%	97.41%	98.88%	2	1	5.186	4.534	1.848
12835	Wednesday, April 29, 2009	8:36	27.34	9.88	18.73	175.51	193.45	17.98	95.97%	97.30%	97.76%	2	1	5.281	4.831	1.898
12834	Wednesday, April 29, 2009	7:52	27.99	9.97	19.29	157.26	175.76	18.53	96.08%	96.99%	96.35%	2	1	4.87	4.761	1.912
12833	Wednesday, April 29, 2009	7:03	29.27	10.09	20.45	137.82	157.45	19.67	96.19%	97.34%	96.70%	2	1	4.946	5.024	1.886
12832	Wednesday, April 29, 2009	6:20	28.21	9.74	19.72	118.94	138.00	19.11	96.93%	97.28%	96.48%	2	1	4.823	4.655	1.87

C	D	E	F	G	H	I	J	K	N	O	P	Q	R	S	T
Column 4 Number_3_Transfer Time		Column 21	Column 22	Unstacked (mA)	Column 23	Column 24	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets	Column 5	Column 6	Column 8
		Number_20_A:J BEAMB sampled on \$91 (A:BEAM7), E10	Number_21_A:J BEAMB sampled on \$94 (A:BEAM9), E10		Number_22_R: BEAMS (R:BEAME0[0]) pre xfer E10	Number_23_R: BEAM (R:BEAME0[1]) post xfer, E10							Number_4_Acc Horizontal Emittance	Number_5_Acc Vertical Emittance	Number_7_Acc Longitudinal Emittance
Totals =>		491.23					471.01	95.88%	96.93%	96.84%	56	25	5.1262	4.7485	1.8853

Studies

- None

Requests

- General Tuning

The Numbers

- Paul's Numbers
 - Most in a half hour: 13.42 mA at Wed Apr 29 12:12:14 CDT 2009
 - Best Hour: 28.56 mA on 20-Dec-08
 - Average Production 17.41 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
 - Average Protons on Target 7.23 e12 Best: 8.77 e12 on 07/24/2007
- Al's Numbers
 - Stacking

- Stacking
 - Pbars stacked: 588.05 E10
 - Time stacking: 23.66 Hr
 - Average stacking rate: 24.86 E10/Hr
- Uptime
 - Number of pulses while in stacking mode: 36771
 - Number of pulses with beam: 35970
 - Fraction of up pulses was: 97.82%
- The uptime's effect on the stacking numbers
 - Corrected time stacking: 23.14 Hr
 - Possible average stacking rate: 25.41 E10/Hr
 - Could have stacked: 601.14 E10/Hr
- Recycler Transfers
 - Pbars sent to the Recycler: 597.66 E10
 - Number of transfers : 60
 - Number of transfer sets: 30
 - Average Number of transfer per set: 2.00
 - Time taken to shoot including reverse proton tuneup: 00.34 Hr
 - Transfer efficiency: 92.79%
- Other Info
 - Average POT : 7.73 E12
 - Average production: 21.14 pbars/E6 protons
- * Missed one or more A:IBEAM7 events somewhere in the middle of the user selected time span. Calculated time shot using 13 secs per transfer.
-

Misc

○ MCR Elog

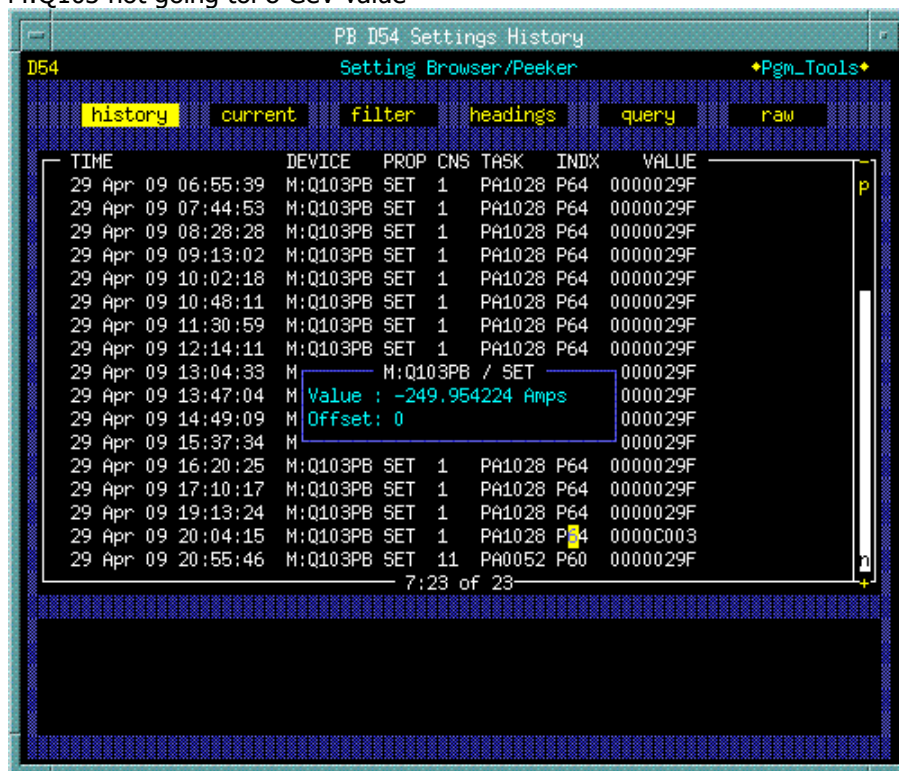
- **11:48:22-** more transfers to recycler; had to throw several resets at A:ISHUT to clear a ACL check error
 Pasted from <<http://www-bd.fnal.gov/cgi-mcr/elog.pl?nb=2009&action=view&page=last&frame=2&scroll=true>>



20:04:07- Tuning up for Recycler transfers. Lost two transfers

Pasted from <<http://www-bd.fnal.gov/cgi-mcr/elog.pl?nb=2009&action=view&page=322&frame=2&anchor=&hilite=>>

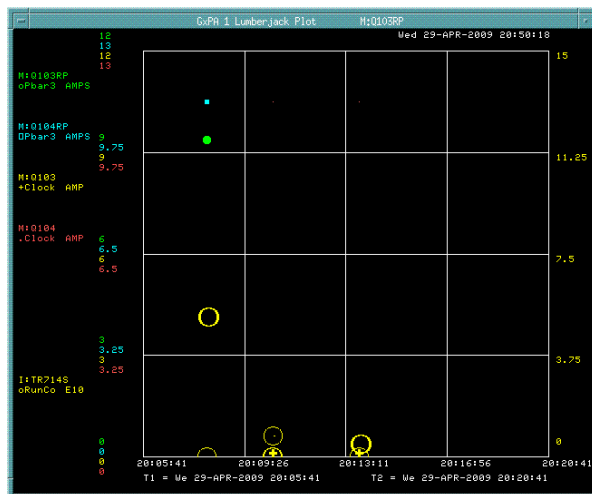
- M:Q103 not going to 8 GeV value



The Sequencer set the PB ramp value (M:Q103PB) from 10.24A to -250A

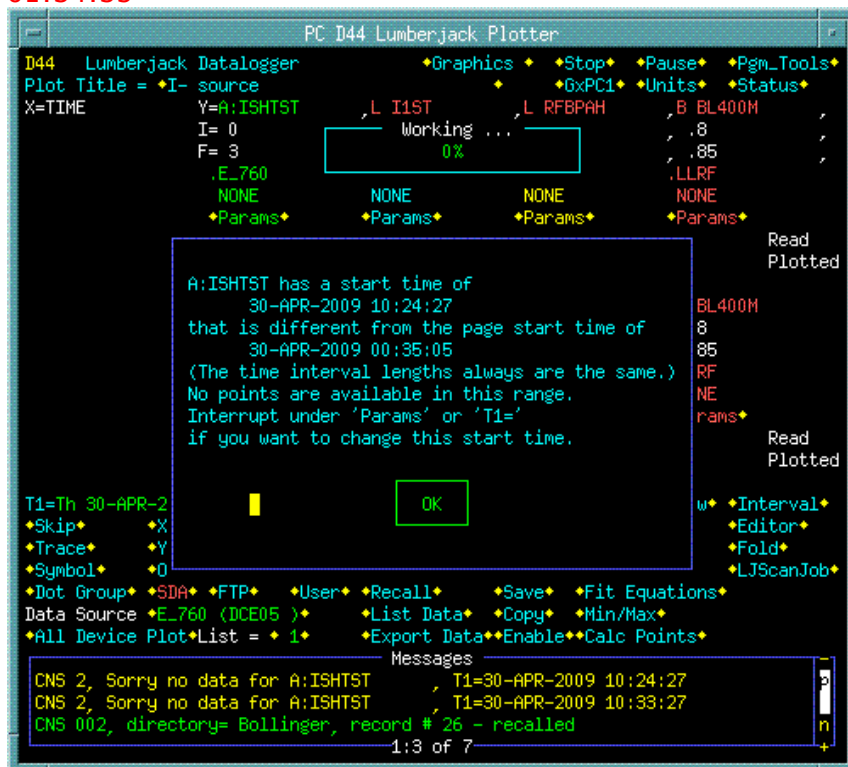
Pasted from <<http://www-bd.fnal.gov/cgi-mcr/elog.pl?nb=2009&action=view&page=322&frame=2&anchor=&hilite=>>

- The Sequencer set the PB ramp value (M:Q103PB) from 10.24A to -250A.



■ Q103

01:34:35-



While attempting to datalog the shutters for Pbar we got this error. It claims the parameter start time does not agree with the page start time. It seems the T1 value is not updating properly under the "Params" for A:ISHTST.

Pasted from <<http://www-bd.fnal.gov/cgi-mcr/elog.pl?nb=2009&action=view&page=323&frame=2&anchor=&hilite=>>

○ 01:37:22-

We had the a2r_setup_revps_os1.acl pbar script bomb out on due to an error with ISHUT. We have gone back to stacking and came around for another try with success. Not sure what the ISHUT problem was but it worked the second time around. - [bS](#)

-- Thu Apr 30 02:06:42 comment by...bS -- ...meaning that it looked OK from a param page and took settings properly.

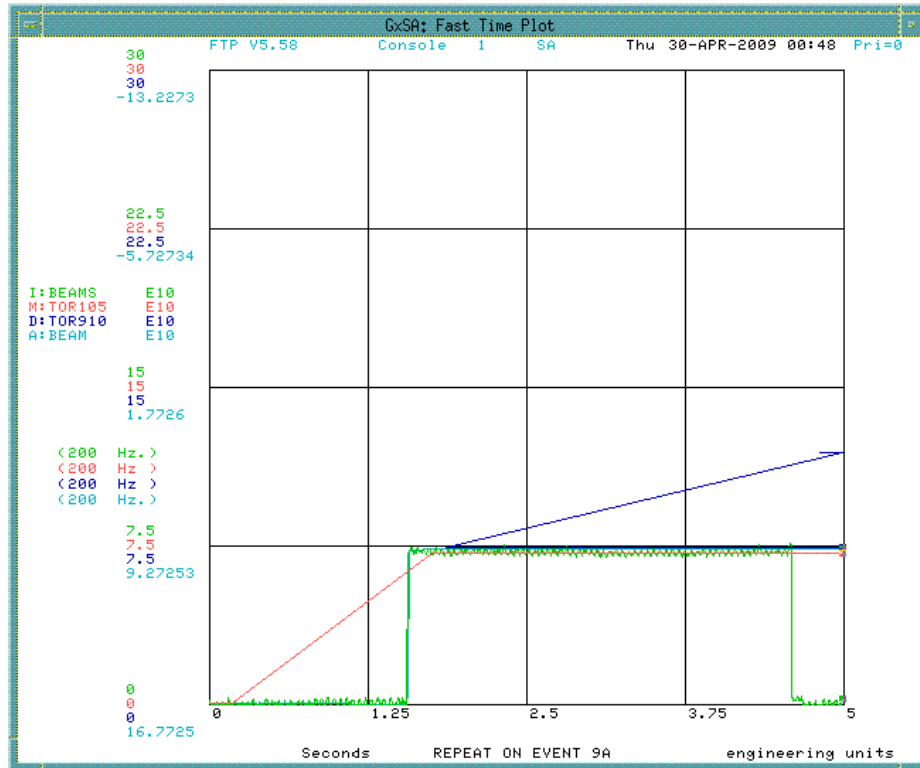
Pasted from <<http://www-bd.fnal.gov/cgi-mcr/elog.pl?nb=2009&action=view&page=323&frame=2>>

&anchor=&hilite=>

- Pbar Elog

- **Thu Apr 30 00:54:22-**

Pasted from <<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar09&action=view&page=last&frame=2>&anchor=&hilite=&load=>



- SMED rays!

- **Thu Apr 30 04:42:00-**

The sequencer failed on two occasions at the beginning of transfers.

Pasted from <<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar09&action=view&page=last&frame=2>&anchor=&hilite=&load=>

&anchor=&hilite=&load=>

The screenshot shows the PB P64 Sequencer interface. The main window displays the execution of an ACL script named 'a2r_setup_revps01'. The script is running on a P64 system, and the status bar indicates it is at line 1 of 119. The script output shows several error messages: 'Extraction RF ready for transfers. Continuing ...', 'Setting up Accumulator shutters for reverse proton tuneup ...', 'Confirming shutter positions ...', 'Error occurred at line 636 - status = ?FAC=XXX -128', 'Retrying - Please don't abort this script!', 'Error occurred at line 636 - status = ACNET_IVM', 'Retrying - Please don't abort th', 'Error occurred at line 636 - sta', 'Retrying - Please don't abort th', 'Injection shutter confirmed ON and OPEN. Continuing ...', 'Could not confirm injection shutter OPEN.', 'Aborting script. Call an expert ...', and 'Could not confirm injection shutter open. - CBS_TIMEOUT'. A red 'Abort' button is visible. The bottom status bar shows '1: 4 of 52'.

```
PB P64 Sequencer
P64 PBAR OPS SEQUENCER DB 30-APR-09 04:38:38 Pgm_Tools
mode edit log status files help
aggregate commands - Rec XFRs - One-Shots
a2r_setup_revps01
Extraction RF ready for transfers. Continuing ...
Setting up Accumulator shutters for reverse proton tuneup ...
Confirming shutter positions ...
Error occurred at line 636 - status = ?FAC=XXX -128
Retrying - Please don't abort this script!
Error occurred at line 636 - status = ACNET_IVM
Retrying - Please don't abort th
Error occurred at line 636 - sta
Retrying - Please don't abort th
Injection shutter confirmed ON and OPEN. Continuing ...
Could not confirm injection shutter OPEN.
Aborting script. Call an expert ...
Could not confirm injection shutter open. - CBS_TIMEOUT
1: 20 of 119
Messages
ACL script failed--interrupt to continue
Could not confirm injection shutter open. - CBS_TIMEOUT
ACL error text:
COM: executing ACL script 'a2r_setup_revps01'
1: 4 of 52
```

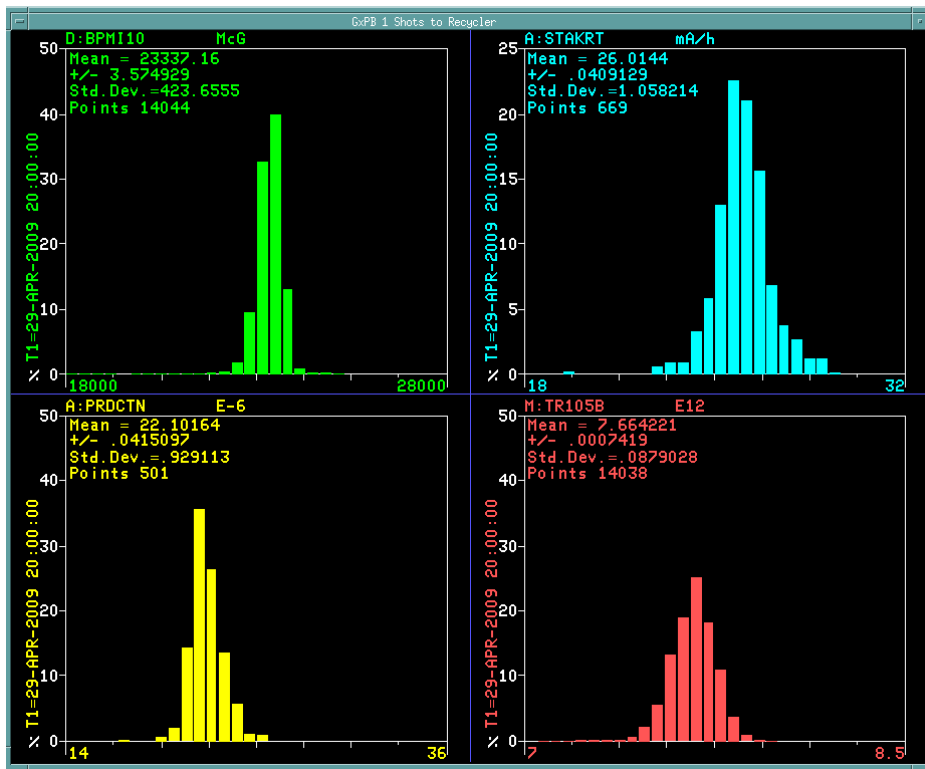
- Thu Apr 30 06:38:35-

More sequencer trouble.

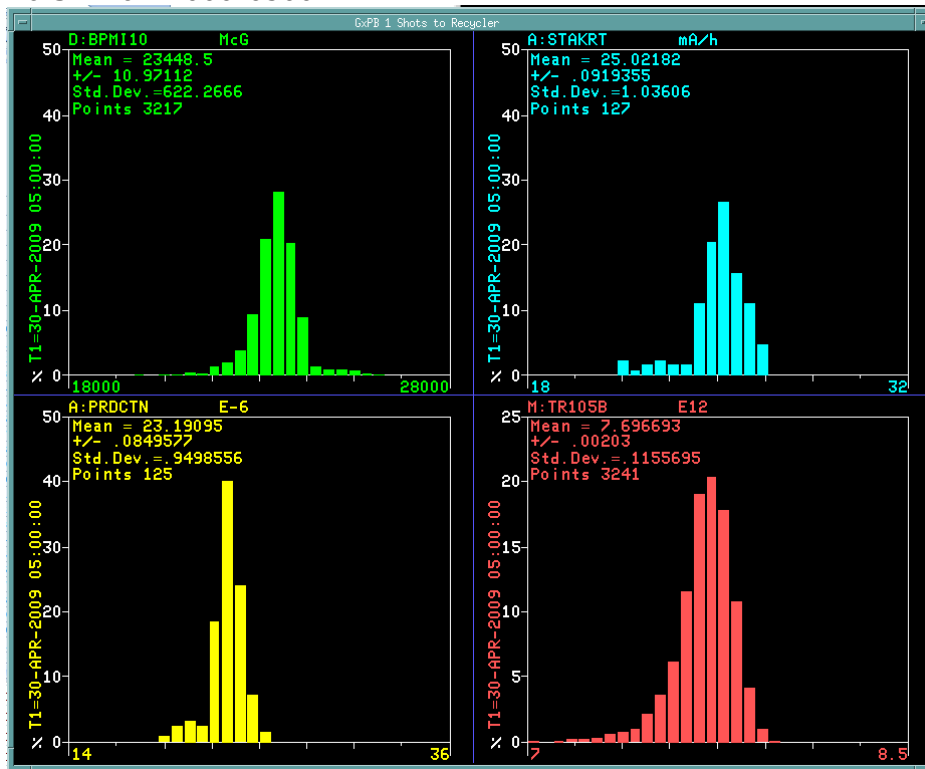
Pasted from <<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar09&action=view&page=last&frame=2&anchor=&hilite=&load=>>>

The screenshot shows the PB P64 Sequencer interface with the ACL script source code displayed. The script is located at '/usr/local/cbs_files/sequencer/acl/a2r_setup_revps01.acl'. The code includes comments and logic for setting up shutters and confirming their positions. The status bar indicates it is at line 1 of 52.

```
PB P64 Sequencer
/usr/local/cbs_files/sequencer/acl/a2r_setup_revps01.acl
timer_event/remove A:ESHUTO = 0F
timer_event/remove A:ISHUTO = 0F
set A:ESHUTC on
set A:ISHUTC on
print "Confirming shutter positions ..."
wait/secs 1
if A:ESHTST = 1 && A:ESHUTC is on ! Make
    print "Extraction shutter confirmed ON & OPEN. Continuing ..."
    print " "
else
    print "Could not confirm extraction shutter OPEN."
    print "Aborting script. Call an expert ..."
    exit "Could not confirm extraction shutter open." cbs_timeout
endif
if A:ISHTST = 1 && A:ISHUTC is on ! Make
    print "Injection shutter confirmed ON and OPEN. Continuing ..."
    print " "
OK
626:647 of 782
1: 4 of 52
```

No SY120 - 2000-0500



With SY120